PRODUCTION OF BIODIESEL FROM CRUDE PALM OIL (CPO) AND CRUDE COCONUT OIL (CCO) THROUGH TRANSESTERIFICATION METHOD

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ABSTRACT

PRODUCTION OF BIODIESEL FROM CRUDE PALM OIL (CPO) AND CRUDE COCONUT OIL (CCO) THROUGH TRANSESTERIFICATION METHOD

Biodiesel is non-toxic: biodegradable diesel fuel made from vegetable oils, animal fats, and used or recycled oils and fats. Crude oil is an example of raw material that meets the requirement to make biodiesel. In this research, biodiesel is produced by transesterification process. Methanol is used as the reactant. Catalyst used was Potassium Hydroxide, KOH. Transesterification process converts triglycerides (triacylcerols often also called TAG).from CPO and CCO to the methyl ester. The yield of the biodiesel of the crude palm oil (CPO) and crude coconut oil (CCO) is 96.57% and 87.88% respectively. Qualitative and quantitative analysis of the methyl esters is determined by the Gas Chromatography (Flame Ionization Detector, FID). For qualitative analysis it is done by comparing the retention time of individual standard with the retention time of the sample. Quantitative analysis were done by the measure the response factor ($RF_)$ and know the amount of methyl ester in the sample. The major component of biodiesel in the CPO and CCO is Methyl Palmitate (48.84%) and Methyl Laurate (71.04%).respectively. Energy content is important aspect for combustion properties of fuel. It was measured by a Bomb Calorimeter in adiabatic mode. From this research, the amount of energy for the diesel, biodiesel (CPO) and biodiesel (CCO) was 45771 J/g, 39885J/g and 37630 J/g respectively.